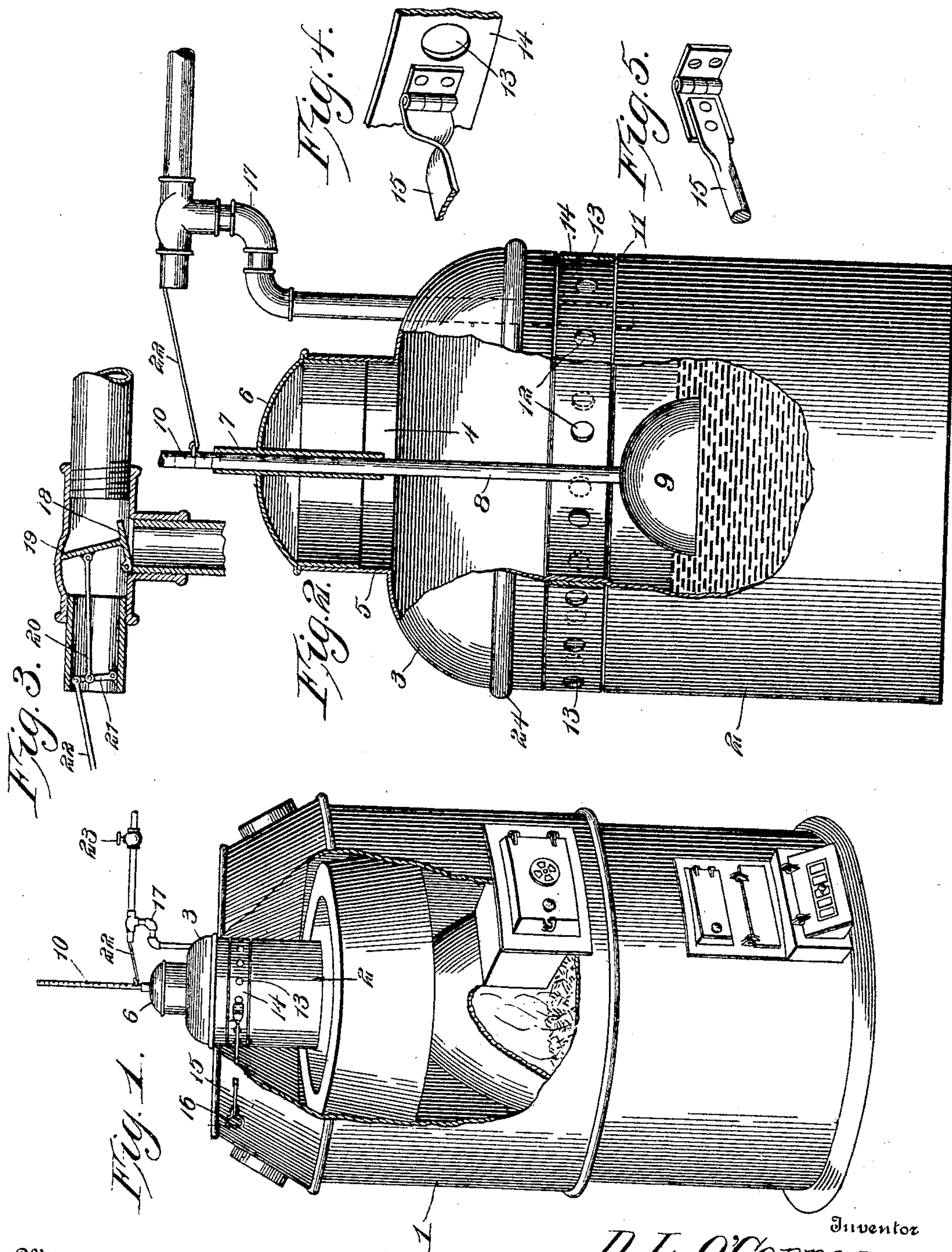


No. 795,411.

PATENTED JULY 25, 1905.

D. E. O'CONNOR.
VAPORIZER FOR FURNACES.
APPLICATION FILED APR. 11, 1905.



Witnesses

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DAVID L. O'CONNOR, OF WAYNESBORO, VIRGINIA.

VAPORIZER FOR FURNACES.

No. 795,411.

Specification of Letters Patent.

Patented July 25, 1905.

Application filed April 11, 1905. Serial No. 255,044.

To all whom it may concern:

Be it known that I, DAVID L. O'CONNOR, a citizen of the United States, residing at Waynesboro, in the county of Augusta and State of Virginia, have invented certain new and useful Improvements in Vaporizers for Furnaces; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to attachments for furnaces, and it is more particularly a device for supplying moisture to air heated within the furnace.

The object of the invention is to provide a retort or receptacle having outlet-ports provided with means for regulating the passage of vapor therethrough.

Another object is to provide means whereby water may be automatically supplied to the vaporizer or retort, said means being supplied with a valve adapted to automatically open and close, according to the quantity of water contained within the device.

With the above and other objects in view the invention consists of a vaporizer, preferably in the form of a cylindrical receptacle, adapted to be supported within the furnace, and this vaporizer has a series of outlet-ports adapted to be opened or closed by a slide provided for that purpose. A feed-pipe extends into the vaporizer and has a valve within it which is connected to a stem extending upward from a float contained within the vaporizer. When the float falls to a predetermined point, a valve is opened to supply water to the vaporizer, and when the float rises to a certain level the valve is closed, so as to prevent the further admission of water. The vaporizer is so located within the furnace that the vapor escaping through its ports will mingle with the hot air and pass outward from the furnace therewith.

The invention also consists of the further novel constructions and combinations of parts hereinafter more fully described, and pointed out in the claims.

In the accompanying drawings I have shown the preferred form of my invention.

In said drawings, Figure 1 is a perspective view of a furnace containing my improved vaporizer, a portion of the casing being broken away to show the vaporizer within the furnace. Fig. 2 is an enlarged view, partly in

elevation and partly in section, of the vaporizer. Fig. 3 is an enlarged section through the valve in the feed-pipe, and Figs. 4 and 5 show different means of connecting an operating-handle to the port-controlling ring.

Referring to the figures by numerals of reference, 1 is a hot-air furnace of any preferred construction, having a centrally-disposed opening in the top thereof adapted to receive the vaporizer which constitutes my invention. This vaporizer consists of a substantially cylindrical receptacle 2, having a dome-shaped top 3, having a central opening 4, surrounded by a circular flange 5. This flange constitutes a support for a closure 6, having a tube 7 projecting therethrough and forming a guide for a stem 8. This stem projects upward from a float 9 and is graduated, as shown at 10.

The body 2 of the vaporizer has an annular groove 11 therein adjacent the dome 3, and a series of ports 12, formed in the inner wall of this groove, are adapted to register with corresponding openings 13, formed in a ring 14, which is mounted within the groove and is adapted to rotate therein. Openings 13 are equal in number to the ports 12 and are adapted to simultaneously register with all of them. By partly turning the ring all of the ports may be partly or entirely closed, so as to regulate the escape of vapor from the vaporizer. A strip 15 is hinged to the ring and is slidably mounted within the casing of the furnace. The outer end of the strip has a handle 16, while its inner end is preferably twisted and constitutes one leaf of the hinge connecting it to the ring 14. If desired, however, the strip may be riveted or otherwise secured to a separate leaf, as shown in Fig. 5.

A feed-pipe 17 extends into the vaporizer from any suitable water-supply and has a valve 18 hinged therein in such a manner as to prevent the passage of water through the pipe to the vaporizer. As shown in the drawings, this valve consists of a hinged plate having a circular plate 19 extending from it, to which is pivoted a rod 20. This rod is connected to a lever 21, which in turn is secured to the stem 10 by means of a rod 22. As the plate 19 fits snugly within the valve-casing, water is prevented from passing it, whether or not said plate is in a vertical or inclined position. It will be noticed that I have curved the wall of the valve-casing to correspond with the path of movement of the end of plate 19. A

suitable valve 23 may be employed for cutting off the supply of water to the vaporizer, if so desired.

The vaporizer herein described is intended to be used as a substitute for the water-pan commonly employed in connection with furnaces of the hot-air type. Instead of its being necessary to carefully watch the furnace and pour water into the pan to keep the air moist, this device automatically supplies water to a vaporizer, which requires absolutely no attention. Water will enter the body 2 through supply-pipe 17 until it lifts the float 9 a sufficient distance to cause its stem 8 to press rod 22 inward and operate lever 21 and rod 20 to close the valve 18. The vapor generated by the hot air contacting with the vaporizer will pass outward through the ports 12 and openings 13 and mingle with the air before it passes into the distributing-pipes. If it is desired to increase or diminish the quantity of vapor supplied, it is merely necessary to turn ring 14 one way or the other by means of strip 15, so as to entirely or partly open ports 12.

The vaporizer may be supported within the furnace in any desired manner; but it is preferably held by a bead 24, which is formed thereon and extends therearound, and this bead rests on the edge of the opening in the top of the furnace-casing, as shown in Fig. 1. If it is desired to clean the vaporizer, the rod 22 can be detached from the stem 10, and the closure 6, together with the stem and float, can then be removed, so that access may be readily had to the interior of body 2.

If it is impossible to connect the vaporizer with a water-supply, the pipe 17 must of course be dispensed with. The stem 10, however, is graduated, so that it will indicate visually the quantity of water contained within the device.

In the foregoing description I have shown the preferred form of my invention; but I do not limit myself thereto, as I am aware that modifications may be made therein without departing from the spirit or sacrificing the advantages thereof, and I therefore reserve the right to make such changes as fairly fall within the scope of my invention.

Having thus fully described my invention,

what I claim as new, and desire to secure by Letters Patent, is—

1. A vaporizer for furnaces comprising a receptacle having ports therein, an apertured ring mounted upon the receptacle and adapted to simultaneously open or close the ports, a supply-pipe opening into the receptacle, a float, and means operated by the float for controlling the passage of liquid through the pipe.

2. A vaporizer for furnaces comprising a receptacle having ports therein, an apertured ring upon the receptacle adapted to simultaneously open or close the ports, a float within the receptacle, a guide therefor, a supply-pipe opening into the receptacle, and means operated by the float for controlling the passage of liquid through the pipe.

3. A vaporizer for furnaces comprising a receptacle having ports therein, means for simultaneously opening or closing the ports, a cover, a float within the receptacle, a stem thereon guided within the cover, a supply-pipe, and means operated by the float for controlling the passage of liquid through the pipe.

4. A vaporizer for furnaces comprising a receptacle having a groove therein, said groove provided with ports, an apertured ring movably mounted within the groove and adapted to open or close the ports, a cover upon the receptacle, a guide-tube therein, a float and a stem extending from the float and slidably mounted within the tube.

5. A vaporizer for furnaces comprising a receptacle having a groove therein, said groove provided with ports, an apertured ring movably mounted within the groove and adapted to open or close the ports, a cover upon the receptacle, a guide-tube therein, a float and a stem projecting from the float and slidably mounted within the tube, a supply-pipe extending into the receptacle, and means operated by the stem and float for controlling the passage of liquid through the pipe.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

DAVID L. O'CONNOR.

Witnesses:

J. B. CROWDER,
W. W. GLASS, Jr.